THE MINERAL INDUSTRY OF

IRELAND

By Harold R. Newman

Ireland remained a major European Union (EU) producer of zinc and an important producer of alumina, lead, and peat in 1998. Although the range of minerals exploited in the country has been limited, exploration activity for new mineral resources continued to increase, mainly emphasizing gold, lead, and zinc. The country's mineral processing industry was small, as was the demand and consumption of mineral products.

Base-metal exploration continued to be the main mineral activity, however, gold exploration was continuing. The upswing in activity in the lead and zinc sector has resulted in the development of new mines and the investigation of several other potential projects.

Ireland's base-metals production, formerly centered mainly on Outokumpu Oyj's Tara zinc-lead mine, increased when Arcon International Resources plc.'s (Arcon) Galmoy zinc-lead mine came on-stream in 1997. Industrial mineral production, including barite and gypsum, remained relatively constant. Several metals and industrial minerals projects were awaiting the granting of planning permission and mining leases before moving into development and production. Natural gas production continued off the southern coast of Ireland near Cork. Reserves were not disclosed, and the production from the fields was being carefully managed to extend the life of the area. (See table 1.)

The Geological Survey of Ireland (GSI) was responsible for the development of mineral information and for technical management of the state mineral licensing and leasing system. The GSI also provided technical assistance to the exploration and mining industry.

Ireland's geology includes several lithological units and tectonic features that are favorable for the occurrence of several types of mineral resources. Interest in gold, lead, and zinc exploration provided the impetus for the revitalization of the exploration sector within the past few years. (See table 2.)

Aughinish Alumina Ltd.'s (AAL) production of alumina was based on imports of bauxite from Guinea; another import source was Brazil. The major markets for AAL's alumina were primary aluminum smelters. British Alcan Aluminium plc. purchased 65% of the refinery's output for its smelter in the United Kingdom, with the remaining 35% purchased by Billiton Aluminium Ireland Ltd. for its smelter in Norway.

Alcan Aluminium Ltd. announced that it reached an agreement in principle with Glencore of Switzerland for the sale of the Aughinish refinery. The refinery, opened in 1983, became wholly owned by Alcan in 1995 when the company exercised its pre-emptive rights over the 35% interest held by Billiton Ltd. Alcan took a $120 million after-tax write down on the sale, but other terms of the deal were not disclosed. The purchase was expected to be completed in the first quarter of 1999 (Metal Bulletin, 1999).

Irish Marine Oil plc. (IMO) was the leading Irish mineral exploration company, holding interests in 52 licenses in Ireland. Although exploration efforts were directed mainly toward zinc, IMO was the most active explorer for gold in Ireland with licenses in Counties Donegal, Kerry, Wexford, and Wicklow. IMO reported that it had intersected gold mineralization at Wexford near Kilmichael (Mining Magazine, 1998).

Also, IMO's drilling near Carnew, on the Wexford/Wicklow border, had intersected four narrow veins all of which assayed from 1 gram per metric ton (g/t) to 11.65 g/t gold over a width of 0.38 meter (m) (Irish Marine Oil plc., 1998).

Conroy Diamonds and Gold plc. continued evaluating the gold potential of its Clontibret prospect in County Monaghan and identified lode structures that it believed have the potential to contain more than 3 million metric tons of gold mineralization at a grade of about 10 g/t gold. Conroy's work at Clontibret, in the Longford-Down Massif, involved the reassessment of drilling results from previous operators, as well as its own drilling and sampling program. This included reentering the shafts of the former Tullybuck/Lisglassan antimony mine for underground mapping and the collection of bulk samples (Mining Journal, 1998b).

Europe's newest zinc mine, Arcon's Galmoy Mine in County Kilkenny, began underground mining in mid-1997. Galmoy's ore bodies, CW, G, G-East, and K-zone are hosted by Lower Carboniferous limestones and lie at the base of the Waulsortian limestone formation. Areas of the mineralization footwall extend several meters down into the underlying Upper Ballysteen limestone formation.

Arcon reported that it had intersected high-grade zinc mineralization in underground drilling at Galmoy. Some of the better results were 10.24 m at a grade of 33.12% zinc and 1.79% lead; 3.70 m, 34.92% zinc and 1.12% lead; 7.3 m, 24.66% zinc and 0.8% lead; and 6.15 m, 22.32% zinc and 0.27% lead. The new ore body is adjacent to the CW ore body and remains open ended. Arcon believed that it may be one of the highest grade zones found at Galmoy so far (Mining Journal, 1998a).

The Lisheen Mine, an Ivernia West plc./Minorco Ltd. 50-50 joint venture, was expected to be the seventh largest producer of zinc in the world and to provide one-fifth of annual EU zinc output when it comes on-stream in September or October 1999. Lisheen is on the same mineralized trend as Arcon's Galmoy Mine, 8 kilometers (km) away. The life of the mine was an estimated 14 years at an operating capacity of 120,000 metric tons per year (t/yr). Operating zinc cash costs were forecast to be $750 per metric ton ($0.34 per pound), which would make it one of the lowest cost zinc producers. Contracts for zinc and lead concentrates sales have been negotiated with European and North American smelters (Metal Bulletin, 1998).

Ireland produced significant quantities of synthetic diamond. Output was not quantitatively reported, and information was not available to make reliable estimates of production. The two companies that manufactured industrial diamonds and superabrasives were De Beers Industrial Diamonds Div. (Ireland), a subsidiary of De Beers Consolidated Mines (Pty.) Ltd. of South Africa, and GE Superabrasives Ireland, a subsidiary of General Electric Co. of the United States.

Although Ireland was considered to hold little prospect for natural diamonds not long ago, Cambridge Mineral Resources reported a discovery of diamond indicator minerals and sapphires from its heavy mineral stream sediment sampling project in the Inishowen area, County Donegal. The company reported that the kimberlite and lamproitic indicator minerals were present at all sample locations diamond indicator minerals were identified at two sample locations, and small blue sapphires were discovered at one location (Flegg and Claringbold, 1998).

There was no recorded coal production during 1998. Indigenous natural gas production continued from the Kinsale Head and Ballycotton gasfields.

Den Norske Stats Oljeselskap A/S (Statoil) of Norway launched a major petroleum program offshore of Ireland's west coast in which 15 other oil companies were study participants. The data that were studied included oceanographic and regional geology in this sector of the Atlantic Margin. All partners in this research initiative were awarded acreage in Ireland's Rockall Trough licensing round in 1997. No oil wells have been drilled in the Rockall Trough area, but studies have shown significant hydrocarbon potential as extensions of west of Shetland and Norwegian fields (Oil on Line, April 1998, Statoil launches research initiative off western Ireland, accessed April 13, 1998, at URL http://www.oilonline.com/news/hs147.htm).

Ireland has a good network of roads supplemented by a Government-owned railroad. Ten secondary ports supplement the two deep-water ports at Cork and Dublin. Most mine sites are easily accessible and no more than 600 km from either deep-water port.

The decrease in gold prices has not affected the interest in gold exploration. The mineral industry is expected to use the opportunities created by the increase in gold and lead-zinc exploration and by renewed interest from multinational companies to continue mineral developments. GSI has an active data-collection program through mapping and resource-related studies and offers technical assistance. This should continue to be a significant benefit and encouragement to companies engaged in mineral-resource activities.

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———1998b, Irish gold—High grade prospects: Mining Journal [London], v.331, no. 8496, September 4, p. 117.

Major Sources of Information

Department of Transport, Energy and Communications
Beggars Bush, Haddington Road, Dublin 4, Ireland

Geological Survey of Ireland
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TABLE 1
IRELAND: PRODUCTION OF MINERAL COMMODITIES 1/

(Thousand metric tons unless otherwise specified)

Commodity		1994	1995	1996	1997	1998 e/
METALS						
Alumina		1,140	1,186	1,234	1,273	1,200
Iron and steel, steel, crude		316	309	340	337	358 2/
Lead:						
Mine output, Pb content	tons	53,700	69,067	45,344	45,149	46,000
Metal, refined, secondary e/	do.	11,000	11,000	10,400	10,500	8,000
Silver, mine output, Ag content	kilograms	17,400	13,700	14,706	13,284	13,000
Zinc, mine output, Zn content	tons	194,500	184,100	164,168	194,796	182,000
INDUSTRIAL MINERALS 3/						
Cement, hydraulic e/		1,550	2,100	2,100	2,000	2,000
Gypsum		325	406	422	477	450
Lime e/		100,000	100,000	100,000	100,000	100,000
Nitrogen, N content of ammonia		380	408	377	465	458 2/
Sand and gravel e/ 4/		7,800	10,000	12,000	12,000	12,000
Stone and other quarry products: e/						
Limestone	million tons	1	1	1	1	1
Other 5/	tons	30,000	30,000	40,000	35,000	36,000
MINERAL FUELS AND RELATED MATERIALS						
Coal, anthracite and bituminous		100	--	--	--	--
Gas, natural, marketed	million cubic meters	2,710	2,826	2,737	2,417	2,400
Peat:						
For horticultural use e/		250 2/	300	300	300	300
For fuel use: e/						
Sod peat 6/		1,200	1,142	1,702	1,500 e/	1,500
Milled peat 7/		5,000	5,000	4,876	2,851 r/	3,000
Total		6,200	6,142	6,578	4,351	4,500
Peat briquets e/		400	365	285	253	300
Petroleum refinery products: e/ 8/						
Liquefied petroleum gas	thousand 42-gallon barrels	360 2/	350	350	350	350
Naphtha	do.	350	350	350	350	350
Gasoline, motor	do.	3,000	3,000	3,000	3,000	3,000
Distillate fuel oil	do.	5,000	5,000	5,000	5,000	5,000
Residual fuel oil	do.	5,470 2/	5,500	5,000	5,000	5,000
Refinery fuel and losses	do.	400	400	400	400	400
Total e/	do.	14,580	14,600	14,100	14,100	14,100

e/ Estimated. r/ Revised.
1/ Table includes data available through May 1999.
2/ Reported figure.
3/ Ireland also produces significant quantities of synthetic diamond and is the major supplier to the United States. Output, however, is not quantitatively reported, and general information is inadequate to make reliable estimates of output levels.
4/ Excludes output by local authorities and road contractors.
5/ Includes clays for cement production, fire clay, granite, marble, rock sand, silica rock, and slate.
6/ Includes production by farmers and by Bord Na Mona.
7/ Includes milled peat used for briquet production.
8/ From imported crude oil.

TABLE 2
IRELAND: STRUCTURE OF THE MINERAL INDUSTRY IN 1998

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facility	Annual capacity
Alumina		Aughinish Alumina Ltd. (Alcan Aluminium Ltd.)	Aughinish Island, County Limerick	800
Barite		Magobar Ireland Ltd.	Silvermines, County Tipperary	240
Cement		Irish Cement Ltd.	Plants in Limerick and Platin	2,000
Lead-zinc		Arcon International Resources plc	Galmoy Mine, County Kilkenny	135
Do.		Outokumpu Oyj	Tara Mine, Navan, County Meath	215
Natural gas	million cubic feet	Marathon Oil Co.	Kinsale Head Field, Celtic Sea	75,000
Peat		Bord Na Mona (Government Peat Board)	Production mainly in midlands	4,200
Petroleum, refined	barrels per day	Irish Refining Co.	Whitegate, near Cork	56,000
Steel		Irish Ispat (Ispat International Group)	Haulbowline, near Cork	500